

## **REMARKS**

### **Status of the Claims**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 11, 21 and 22 are currently being amended.

Claims 24-29 are being added. Support for newly added claims 24-29 is found throughout the specification. Exemplary support for claim 24 is found on page 12, lines 8-10. Exemplary support for newly added claims 25-29 is found in original claim 11.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

Upon entry of this Amendment, claims 2, 4-6, 11-13 and 20-29 will be pending in the application.

### **Claim Objections**

The Examiner objects to claim 21 because there is insufficient antecedent basis for "said second polypeptides." Applicants have replaced this term with "said second proteins." Applicants respectfully request withdrawal of the objection.

### **Claim Rejections - 35 U.S.C. § 112, Second Paragraph**

Claims 2, 11-13 and 20-23 are rejected by the Examiner under 35 U.S.C. § 112, second paragraph as being allegedly indefinite. Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner asserts that Applicants' previous amendment to claim 11(c) to recite that the FRS2 polypeptide has FRS2 activity does not overcome the rejection. Applicants have deleted part (c) from claim 11 and have added this subject matter as new claim 27. With

respect to the Examiner's rejection of 11(c), Applicants do not agree with the Examiner's assertion. However, in order to expedite prosecution, claim 27 recites that the FRS2 polypeptide regulates growth factor stimulation of cellular differentiation and cellular proliferation. Exemplary support for this amendment is found in the specification on page 5, lines 20-22.

Turning to claim 11(k), Applicants have deleted part (k) from claim 11 and have added this subject matter as new claim 29. Claim 29 recites "is the complement of..."

Finally, with respect to claim 22, Applicants have amended claim 22 to depend from claim 4.

**Claim Rejections - 35 U.S.C. § 112, First Paragraph**

A. Claims 2, 4-6, 11-13 and 20-23 are rejected by the Examiner under 35 U.S.C. § 112, first paragraph for lack of written description. Applicants respectfully request reconsideration and withdrawal of the rejection.

With respect to claim 4, the Examiner asserts that Applicants have not adequately described the genus of nucleic acid probes comprising a nucleotide sequence that encodes a polypeptide comprising 10 contiguous amino acids of SEQ ID NO: 1. Applicants respectfully disagree. The specification discloses SEQ ID NO: 1. *See, e.g.*, Figure 1A. Additionally, on page 12, line 18, the specification discloses that a nucleic acid probe can encode at least 10 contiguous amino acids of the full-length sequence set forth in Figure 1A (SEQ ID NO: 1). Therefore, the genus of nucleic acid probes comprising a nucleotide sequence that encodes a polypeptide comprising 10 contiguous amino acids of SEQ ID NO: 1 has been disclosed.

Turning to claim 11, the Examiner asserts that claim 11(h) reads on any nucleic acid molecule which encodes any polypeptide. Applicants have deleted part (h) from claim 11. Applicants have added new dependent claim 25 which recites parts (d) and (e) of former claim 11 and new dependent claim 26 which recites parts (h) and (i) of former claim 11. Claims 25 and 26 recite the phrase "except that it lacks at least one, but not all of the domains...." The language of claims 25 and 26 is similar to the language of claims 7 and 8 of the parent application, now U.S. Patent No. 6,310,181.

B. Claims 2, 4-6, 11-13 and 20-23 are rejected by the Examiner under 35 U.S.C. § 112, first paragraph for lack of enablement. Applicants respectfully request reconsideration and withdrawal of the rejection.

With respect to claim 4, the Examiner asserts that a person of ordinary skill in the art would not know how to use the nucleic acid probes of claim 4. Applicants respectfully disagree with the Examiner and assert that the specification provides sufficient enablement for a person of ordinary skill in the art to make and use the probe of claim 4. For example, on page 12, lines 8-10 of the specification it states

[a]nother aspect of the invention features a nucleic acid probe that can detect nucleic acid molecules encoding a FRS2 polypeptide in a sample.

On page 12, lines 21, through page 13, line 1 of the specification it states

[t]he nucleic acid probe can be labeled with a reporter molecule or molecules. The term 'reporter molecule' refers to a molecule that is conjugated to the nucleic acid probe or is contained within the nucleic acid probe. The reporter molecule allows the detection of the probe by methods used in the art. Reporter molecules are chosen from, but limited to, the group consisting of an enzyme, such as a peroxidase, a radioactive element, or an avidin molecule.

On page 14, lines 3-6 of the specification it states

[m]ethods for using the probes include detecting the presence or amount of FRS2 RNA in a sample by contacting the sample with a nucleic acid probe under conditions such that hybridization occurs.

Additionally, on page 30, line 28, through page 31 line 14 of the specification it states

Another aspect of the invention relates to a method of diagnosing an abnormal condition associated with cell proliferation or cell differentiation in an organism. The abnormal condition can be associated with an aberration in a signal transduction pathway characterized by an interaction between a FRS2 polypeptide and a natural binding partner. The method comprises of the step of detecting an abnormal

interaction.

The term 'detecting an abnormal interaction' defines a method of identifying a FRS2 molecule with an aberration in its activity. Detection is accomplished by using an antibody or antibody fragment of the invention, a nucleic acid probe of the invention, or a compound of the invention.

Turning to claim 11, as discussed above, Applicants have deleted part (h) from claim 11. Applicants have added new dependent claim 25 which recites parts (d) and (e) of former claim 11 and new dependent claim 26 which recites parts (h) and (i) of former claim 11. Claims 25 and 26 recite the phrase "except that it lacks at least one, but not all of the domains...." The language of claims 25 and 26 is similar to the language of claims 7 and 8 of the parent application, now U.S. Patent No. 6,310,181.

#### **Claim Rejections - 35 U.S.C. § 102**

Claim 11 is rejected by the Examiner under 35 U.S.C. § 102 as being anticipated by Otilie et al. The Examiner asserts that part (h) of claim 11 encompasses the nucleic acid molecule of Otilie et al. Applicants respectfully request reconsideration and withdrawal of the rejection.

As discussed above, Applicants have deleted part (h) from claim 11. Applicants have added new dependent claim 26 which recites part (h) of former claim 11. Claim 26 recites the phrase "except that it lacks at least one, but not all of the domains...." The language of claim 26 is similar to the language of claims 7 and 8 of the parent application, now U.S. Patent No. 6,310,181. Therefore, claim 11, as well as new claim 26, are not anticipated by Otilie et al.

#### **Claim Rejections - 35 U.S.C. § 103**

Claims 2 and 11-13 are rejected by the Examiner under 35 U.S.C. § 103 as being obvious over Wang et al. Applicants respectfully request reconsideration and withdrawal of the rejection.

As discussed above, Applicants have deleted part (h) from claim 11. Applicants have added new dependent claim 26 which recites part (h) of former claim 11. Claim 26 recites

the phrase “except that it lacks at least one, but not all of the domains....” The language of claim 26 is similar to the language of claims 7 and 8 of the parent application, now U.S. Patent No. 6,310,181. Therefore, claims 2 and 11-13, as amended, as well as new claim 26, are not obvious over Wang et al.

### CONCLUSION

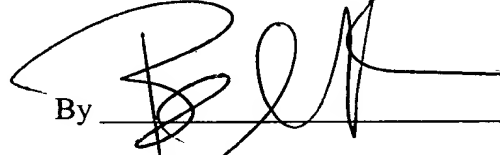
Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 11/7/03

By 

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